



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,351	09/30/2003	Sean J. Hart	NC 84,517	8470
26384,	7590	05/31/2007	EXAMINER	
NAVAL RESEARCH LABORATORY ASSOCIATE COUNSEL (PATENTS) CODE 1008.2 4555 OVERLOOK AVENUE, S.W. WASHINGTON, DC 20375-5320			DRODGE, JOSEPH W	
		ART UNIT	PAPER NUMBER	
		1723		
		MAIL DATE	DELIVERY MODE	
		05/31/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

MAILED  
MAY 31 2007  
GROUP 1700

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/673,351  
Filing Date: September 30, 2003  
Appellant(s): HART ET AL.

Thomas D. Robbins  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed March 16, 2007 appealing from the Office action mailed March 22, 2006.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The amendment after final rejection filed on June 12, 2006 has not been entered.

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: The grounds of rejection to be reviewed on appeal, with reference to page 2 of the final Office action dated March 22, 2006, is whether Dapprich anticipates the invention recited in claims 11-18 (not claims 11-17 as in the Appeal Brief).

This corrects an obvious typographical error in the Brief.

**(7) Claims Appendix.**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

The following is a listing of the evidence relied upon by the examiner in the rejection of the claims under appeal:

DAPPRICH Patent 6,585,939      07-2003.

No additional evidence is introduced in the appellant's brief.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 11-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Dapprich Patent 6,585,939. With respect to each of independent claims 11, 13 and 17, Dapprich discloses a poly-dimethylsiloxane (PDMS) body 11 containing flow-through fluid pathways 64,66, and other various pathways (cavities, microstructures, channels, reaction chambers, and reservoirs in the microstructures, etc. disclosed at column 11, lines 16-28 and 49-66 (flow being forced through the pathways in selected particular directions by various valves and pumps, see for instance column 11, lines 53-59 and 59-66). Dapprich also discloses light input part 62 that is comprised of a coating

Art Unit: 1723

material other than PDMS, and is operable to reverse or change the direction of light flow through the pathway (figure 9; column 12, lines 22-58 and column 13, lines 30-44) that may be of metallic or other material. Additional light input and light travel-causing parts/optical devices include various lenses, mirrors and other reflecting and refracting surfaces, optical absorbers and optical scatterers that receive or input light and redirect light to flow in many different directions, inherently including directions opposed to directions of flow of fluid (column 12, line 21 through column 13, line 28 describe these different light input/travel inducing parts and their locations incorporated into a plurality of the microstructures containing the pathways.

For dependent claims 12, 16 and 18 light manipulating or focusing parts, such as lenses, are disclosed at column 12, lines 22-26 and 44-46, etc. For claims 17 and 18, also see light source 68,70, etc. (column 11, lines 43-48 and column 12, lines 53-58, column 13, lines 20-44, etc.).

For claims 13-15, to paraphrase portions of the preceding paragraph, the body 11 is of a first PDMS material and the light input part 62 that can reverse or change direction of light flow is of a different coating, polymeric or metallic material (figure 9; column 12, lines 22-58 and column 13, lines 3-14, 19-22 and 30-44). The light input part or other components may also comprise glass (column 10, lines 13-15) for claim 15. Again, Dapprich discloses a poly-dimethylsiloxane (PDMS) body 11 containing flow-through fluid pathways 64,66, and other various pathways (cavities, microstructures, channels, reaction chambers and reservoirs in the microstructures, etc. disclosed at column 11, lines 16-28 and 49-66 (flow being forced through the

Art Unit: 1723

pathways in selected particular directions by various valves and pumps, see for instance column 11, lines 53-59 and 59-66).

Again, additional light input and light travel-causing parts/optical devices include various lenses, mirrors and other reflecting and refracting surfaces, optical absorbers and optical scatterers that receive or input light and redirect light to flow in many different directions, inherently including directions opposed to directions of the flow of fluid (column 12, line 21 through column 13, line 28 describe these different light input/travel inducing parts and their locations incorporated into a plurality of the microstructures containing the pathways.

**(10) Response to Argument**

**With respect to each of claims 11,13 and 17 and claims dependent therefrom, it is argued that Dapprich fails to disclose a light input part that permits light to travel into the PDMS body and on through the pathway in a direction opposite to the direction of flow in the fluid pathway. It is submitted that Dapprich describe flow being directed through fluid pathways or microstructure components in specified particular directions (see for example column 11, lines 64-66) the varied light input parts/optical units of Dapprich include optical units that redirect and scatter light flow in all directions, hence including directions that are opposite flow directions of fluid flow (see in particular column 13, lines 16-29).**

**In particular, the litany of examples of optical devices of column 12, line 59 through column 13, line 44 of Dapprich, as pointed out in the Brief, are operable for directing and scattering light in numerous directions. It is now emphasized that the claims do not require focusing of light travel in a particular direction. The claims are broad enough to read on any amount, or portion, of light travel through a fluid pathway in a direction that is opposite to a flow of fluid.**

**With respect to each of claims 11, 13 and 17, it is also argued that Dapprich fails to disclose optical devices that control the direction of fluid flow. It is immaterial as to whether or not this is the case, since none of the claims recite optical devices being operable to 'control' fluid flow.**

Art Unit: 1723

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

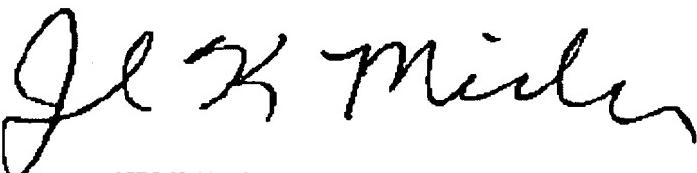
For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Joseph Drodge

Conferees:

*Joseph Drodge*  
JOSEPH DRDGE  
PRIMARY EXAMINER



JENNIFER MICHENER  
QUALITY ASSURANCE SPECIALIST

Jennifer Michener

Steven Griffin

JWD



May 24, 2007